chip; and a carrier wave used to carry computer-readable electronic data, such as those used in transmitting and receiving e-mail or in accessing a network.

[24]   "Software" refers to prescribed rules to operate a computer. Examples of software include: software; code segments; instructions; computer programs; and programmed logic.

[25]   A "computer system" refers to a system having a computer, where the computer comprises a computer-readable medium embodying software to operate the computer.

[26]   A "network" refers to a number of computers and associated devices that are connected by communication facilities. A network involves permanent connections such as cables or temporary connections such as those made through telephone or other communication links. Examples of a network include: an internet, such as the Internet; an intranet; a local area network (LAN); a wide area network (WAN); and a combination of networks, such as an internet and an intranet.

BRIEF DESCRIPTION OF THE DRAWINGS

[27]   Embodiments of the invention are explained in greater detail by way of the drawings, where the same reference numerals refer to the same features.

[28]   Figure 1 illustrates a plan view of the invention.

[29]   Figure 2 illustrates a flow diagram of the invention.

[30]   Figure 3 illustrates a flow diagram for editing a camera-motion layer.

[31]   Figure 4 illustrates various aspects of editing a camera-motion layer.

[32]   Figure 5 illustrates a flow diagram for editing a fixed-frame layer.

[33]   Figure 4 illustrates various aspects of editing a fixed-frame layer.

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[34]   Figure 7 illustrates a system implementation of the invention.

[35]   Figure 8 illustrates an example of a frame of an original video sequence.

[36]   Figure 9 illustrates an example of an original image for a camera-motion layer obtained from the frame of Figure 8.

[37]   Figure 10 illustrates an example of an edge image obtained from the original image of Figure 9.

[38]   Figure 11 illustrates an example of a modified image obtained from the edge image of Figure 10.

DETAILED DESCRIPTION OF THE INVENTION

[39]   With the invention, an original video sequence is edited in a decomposed form, which is different from the conventional approach of editing individually each frame of the original video sequence. By changing a small aspect of the decomposed original video sequence, every frame of the composite modified video sequence can be affected without the need to edit every frame of the original video sequence. Depending on which aspects of the decomposed original video sequence are edited, some or all of the composite modified video sequence can be affected.

[40]   Figure 1 illustrates a plan view of the invention, and Figure 2 illustrates a flow diagram of the invention. In block 11, an original video sequence 1 is obtained. The original video sequence can be obtained from, for example, a live feed, a storage device, or a network connection. The original video sequence can be from a recording, computer-generated graphics, or a combination of both. The original video sequence can be a previous original video sequence modified according to the invention. The original video sequence, for example, includes one or

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more frames. The original video sequence can be, for example, a portion of a video or an entire video. As a portion of a video, the original video sequence can be, for example, one continuance sequence of one or more frames of the video or two or more discontinuous sequences of one or more frames of the video.

[41]   In block 12, the original video sequence 1 is decomposed by the object-based video encoder 2 to obtain a decomposed original video sequence 3. The decomposed original video sequence 1 comprises at least one original camera-motion layer, zero or more original fixed-framed layers, and other encoding information, including camera motion parameters. The original video sequence is decomposed into multiple layers, namely original camera-motion layers and original fixed-frame layers.

[42]   The camera-motion layers are layers that appear to move with the camera as the camera moves. The camera-motion layers can be considered to be in the background of a frame, but they are not necessarily always in what a viewer would refer to as the background. The camera-motion layers generally correspond to the background of a video frame, but they are not limited to being in the background. The apparent motion of the background due to camera motion is recreated by reprojecting the relevant part of the camera-motion layers according to the desired motion of the camera as dictated by the camera motion parameters. As an example, the background composite discussed above can be considered to be a camera-motion layer. As another example, with the MPEG-4 international standard for representing digital video, the so-called "sprite," which is the background of a video and which is a single image that represents all the background points in a video sequence, can be considered to be a camera-motion layer. As a further example, an original video sequence can be decomposed into a decomposed original video sequence having original camera-motion layers as well as camera motion parameters using

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